Claims

1. A method for the conversion into carbon of gaseous hydrocarbons extracted from a natural hydrocarbon reservoir, which method comprises contacting said gaseous hydrocarbon at an elevated temperature in a reactor with a catalyst capable of converting said hydrocarbon to carbon and hydrogen; separating hydrogen produced from unconverted hydrocarbon; burning said hydrogen to generate energy; and using the energy generated to heat said reactor or the gaseous hydrocarbon flow thereto, or to heat or power a heat or power consuming apparatus.

2. A method as claimed in claim 1 wherein the energy generated is used to heat said reactor or the gaseous hydrocarbon flow thereto.

3. A method as claimed in claim 1 wherein the energy generated is used to power an electricity generator.

4. A method as claimed in any one of claims 1 to 3, wherein said catalyst is particulate.

5. A method as claimed in any one of claims 1 to 4 wherein said catalyst is a Raney metal.

6. A method as claimed in any one of claims 1 to 4 wherein said catalyst comprises an element selected from Ni, Co and Fe.

7. A method as claimed in any one of claims 1 to 6 wherein said catalyst is particulate with a mode particle size of 1 to 300μm.

8. A method as claimed in any one of claims 1 to 6 wherein hydrogen is burned in an internal combustion engine.

9. A method as claimed in any one of claims 1 to 8 wherein the hydrogen is separated from the unconverted hydrocarbon using a hydrogen-permeable membrane.

10. An apparatus for the conversion of hydrocarbon gas to carbon, said apparatus comprising a reactor vessel (2) having a gas inlet port (18) and a gas outlet port (19);

a separator (4) for removing hydrogen from a hydrocarbon and hydrogen containing gas;

a gas conduit (3) from said gas outlet port to said separator;

a combustor (9) arranged to burn hydrogen from said separator to generate energy; and

an energy transferrer (11) arranged to transfer energy from said combustor to said reactor vessel or to a further heat or power consuming apparatus (20).

11. An apparatus as claimed in claim 9 further comprising an electricity generator (20) powered by energy from said combustor.

12. A process for the preparation of fibrous carbon which comprises contacting a metallic catalyst with a carbon-containing gas at elevated temperature, characterized in that said catalyst is sponge iron.